1. An excavator tooth useful for fracturing rock strata, comprising:

A. a metallic core having front and rear ends and at least one longitudinal surface extending between said ends;

B. at least one projection formed from metallic stock and having a tip; said projection being secured to the core at least in part by welding with the tip and at least a portion of the length of the projection(s) extending beyond the front end of the core; and

C. in or on the core, at least one tooth connector portion, including at least one concave or convex connector surface, of circular or other configuration, positioned and adapted to engage with and non-destructively disengage from at least one mating surface of an excavator apparatus.

2. An excavator tooth according to claim 1wherein the core is of circular cross-section and has a single longitudinal surface in the form of a cylinder.

3. An excavator tooth according to claim 1wherein the core is of non-circular cross-section and has plural longitudinal surfaces.

4. An excavator tooth according to claim 1wherein the at least one projection preferably includes at least one cut edge.

5. An excavator tooth according to claim 1wherein the projection metallic stock thickness is about 1/2 to about 3, or about 3/4 to about 2 and 1/4 or about 1 to about 1 and 1/2, inches.

6. An excavator tooth according to claim 1wherein the tooth includes at least one projection which has on opposite sides thereof, as viewed in transverse cross-section, at least two approximately planar surfaces which are approximately parallel to one another.

7. An excavator tooth according to claim 1 having at least two of said projections thereon.

8. An excavator tooth according to claim 4 wherein two projections are secured to substantially opposite sides of the core.

9. An excavator tooth according to claim 4 wherein at least two of said projections have inner major surfaces, portions of which surfaces generally face one another and extend forwardly from the core, said portions, as they progress toward their tips, having an angle of divergence between them of about 0 to about 30 degrees, preferably about 2 to about 30 degrees, more preferably about 12 to about 24

degrees, still more preferably about 16 to about 20 degrees and most preferably about 18 degrees.

10. An excavator tooth according to claim 1wherein the metallic stock is of abrasion resistant steel having a surface BHN (Brinell Hardness Number) of at least about 225, preferably at least about 300, more preferably at least about 350, more preferably at least about 375 and still more preferably at least about 400.

11. An excavator tooth according to claim 7 which comprises iron, carbon, manganese and silicon, and optionally but preferably at least one additional alloying element selected from the group consisting of chromium, nickel, boron, molybdenum, vanadium, titanium, copper, aluminum, niobium and nitrogen.

12. An excavator tooth according to claim 8 wherein the sulfur and phosphorous contents of the plate are respectively less than about 0.05, preferably less than about 0.04 and still more preferably less than about 0.030 percent by weight of the entire plate stock.

13. An excavator tooth according to claim 1 wherein there is a narrowing of at least one projection, between its generally longitudinal edges, in the direction of the tip.

14. An excavator tooth according to claim 1 wherein first and second longitudinal edges of at least one projection, or more preferably first and second edges of a plurality of projections, converge with one another, along at least a portion of their respective lengths, in the direction of their tip or tips.

15. An excavator tooth according to claim 14 wherein such narrowing, or such convergence, exists at least closely adjacent to the tip or tips.

16. An excavator tooth according to claim 14 wherein the projection edges converge, as the edges approach the tips, preferably at an angle of about 10 to about 35 degrees, more preferably about 15 to about 30 degrees, still more preferably about 17 to about 25 degrees and even more preferably about 21±2 degrees.

17. An excavator tooth according to claim 14 comprising convergence of at least portions of projection longitudinal edges along substantially straight lines, preferably closely adjacent to their tip or tips.

18. An excavator tooth according to claim 14 wherein convergence occurs over at least about 25% and more preferably up to at least about 100% of the length of the projection longitudinal edges

19. An excavator tooth according to claim 14 wherein the angles of convergence between edges as the edges approach the tips is

generally about 10 to about 35 degrees, preferably about 15 to about 30 degrees, more preferably about 17 to about 25 degrees and still more preferably about 21±2 degrees.

20. An excavator tooth according to claim 1 or 19 including a projection with two convergent edges that are cut edges.

21. An excavator tooth according to claim 1wherein at least one projection is secured to the core through at least one longitudinal surface of the core.

22. An excavator tooth according to claim 1, 7 or 21 wherein the projection or projections is/are secured to the core entirely by welds.

23. An excavator tooth according to claim 1 comprising a plurality of said projections that respectively extend along at least a portion of a given longitudinal surface and are secured to the core at least in part by welds between the given surface and adjacent portions of the projections.

24. An excavator tooth according to claim 1 wherein the tooth connector portion is located at the rear end of the core.

25. An excavator tooth according to claim 1 wherein the tooth connector portion is located in or on a rearmost surface of the core.

26. An excavator tooth according to claim 1 wherein the tooth connector portion is securely connected with a mating surface of an excavator apparatus.

27. An excavator tooth according to claim 26 wherein the tooth connector portion is a female member extending into the rear end of the core and the mating surface is a male member on an excavator apparatus.

28. An excavator tooth according to claim 26 wherein the tooth connector portion is a male member extending rearwardly from the rear end of the core and the mating surface is a female member on an excavator apparatus.

29. An excavator tooth according to claim 26 wherein a locking member engaging the tooth and a portion of the excavator apparatus provides security for the connection between the tooth connector portion and the mating surface.

30. An excavator tooth according to claim 29 wherein the locking member is a resilient insert or metallic pin.

31. An excavator tooth according to claim 26 wherein the excavator apparatus is an excavating machine adapted to carry, in working position, one or more teeth constructed according to the invention.

32. An excavator tooth according to claim 26 wherein the excavator apparatus is an excavating machine selected from the group consisting of power shovels, backhoes, draglines, dredges, graders and bulldozers.

33. An excavator tooth according to claim 26 wherein the excavator apparatus is a digging attachment or combination of attachments adapted to be mounted on an excavating machine and to carry, in working position, one or more of said teeth.

34. An excavator tooth according to claim 1 connected with a bucket having a mounting pin for connecting the bucket to an excavating machine, the tooth having a projection with a major surface which is held in approximately perpendicular relationship with the longitudinal axis of the mounting pin.

35. An excavator tooth according to claim 1 connected with a rock ripping tool having a mounting pin for connecting the tool to an excavating machine, the tooth having a projection with a major surface which is held in approximately perpendicular relationship with the longitudinal axis of the mounting pin.

36. An excavator tooth according to claim 1 connected with a bucket or blade at a substantially rectilinear cutting edge of the bucket or blade, said edge defining a digging axis, a major surface of the tooth being held in approximately perpendicular relationship with that axis.

37. An excavator tooth according to claim 1 connected with a bucket or blade having an at least partly non-rectilinear cutting edge having ends at sides of the bucket or blade, said bucket or blade having a digging axis defined by an imaginary line connecting said ends, a major surface of the tooth being held in approximately perpendicular relationship with that axis.

38. An excavator tooth according to claim 1 connected with a digging end of a pivotable ripping arm for an excavating machine, said arm having a pivoting axis about which the arm swings in operation, a major surface of the tooth being held in approximately perpendicular relationship with the axis.

39. A method of excavation with an excavating machine having an arm with a pivot affording angular movement of an end of the arm about a central axis of the pivot, said arm supporting and delivering digging force and motion to a digging implement having projections, said method comprising applying such force through projections that are

formed of cut plate stock and have major surfaces that are approximately perpendicular to said axis.

40. A method of fracturing rock or frozen earth with an excavating machine having an arm with a pivot affording angular movement of an end of the arm about a central axis of the pivot, said arm supporting and delivering digging force and motion to a digging implement able to apply sufficient force through the tips of projections on said implement to break up the strata, said method comprising applying such force through projections that are formed of cut plate stock and have major surfaces that are approximately perpendicular to said axis.

41. A method according to claim 39 or 40 comprising applying such force through one or more teeth having edges that converge at angles of convergence between edges as the edges approach the tips of generally about 10 to about 35 degrees, preferably about 15 to about 30 degrees, more preferably about 17 to about 25 degrees and still more preferably about 21±2 degrees.

42. A method according to claim 39 or 40 comprising applying such force through one or more teeth respectively having at least two of said projections with tips and inner major surfaces, portions of which surfaces generally face one another and extend forwardly from the core, said portions, as they progress toward their tips, having an

angle of divergence between them of about 0 to about 30 degrees, about 2 to about 30 degrees, or about 12 to about 24 degrees, or about 16 to about 20 degrees or about 18 degrees.

43. A method according to claim 39 or 40 comprising applying such force through teeth wherein the plate stock is abrasion resistant steel plate having a surface BHN (Brinell Hardness Number) of at least about 225, more preferably at least about 300, more preferably at least about 350, more preferably at least about 375 and more preferably at least about 400.

44. A method according to claim 39 or 40 comprising applying such force through teeth which comprise iron, carbon, manganese and silicon, and optionally but preferably at least one additional alloying element selected from the group consisting of chromium, nickel, boron, molybdenum, vanadium, titanium, copper, aluminum, niobium and nitrogen.